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10/606,677	06/26/2003	Glenn Mahony	9400-7	5379

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EXAMINER
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AZEMAR, GUERSSY

ART UNIT	PAPER NUMBER
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2613

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/03/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/606,677

Applicant(s)

MAHONY ET AL.

Examiner

Guerssy Azemar

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 06/27/2003
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claim 1-35 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt et al. (20030076560) in view of Xu et al. (20020071149).

(1) With respect to claims 1 and 24:

Pratt et al. teach a telecommunications system, comprising: a passive optical network (PON) including an optical splitter (18 in figure 1) configured to serve optical network terminations (ONTs) at respective ones of a plurality of subscriber premises (12 in figure 1, page 2, paragraph 0018 supports ONTs located at the subscriber premises);

However, Pratt et al. does not teach an optical network unit (ONU) coupled to the PON and configured to provide communications for the plurality of the subscriber premises.

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Xu et al. teach an optical network unit (ONU) coupled to the PON and configured to provide communications for the plurality of the subscriber premises (figure 1 shows ONU connected to local network and subscriber premises).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the ONU to serve the subscriber premises as taught by Xu et al. in the network taught by Pratt et al. in order to route the signals to their appropriate subscribers.

(2) With respect to claims 2 and 25:

Pratt et al. teach all of the subject matter as described above, except for a system wherein the optical splitter directly subtends the ONU.

Xu et al. teach a system wherein the optical splitter directly subtends the ONU (see figure 1, the splitters are connected directly to the ONUs).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to design a network so that the splitter directly subtends the ONU as taught by Xu et al. in the network taught by Pratt et al. because the transmission would be faster as there are no intervening device between the ONU and the splitter.

(3) With respect to claim 8:

Pratt et al. teach a system wherein the PON comprises a plurality of optical splitters (18 in figure 1) configured to serve ONTs at respective ones of the geographical clusters of subscriber premises (12 in figure 1, splitter 18 connects many houses that form the cluster).

However, Pratt et al. do not teach a system comprising a plurality of ONUs that provide communications to respective geographical clusters of subscriber premises and optical splitter subtending the respective ONUs.

Xu et al. teach a system comprising a plurality of ONUs that provide communications to respective geographical clusters of subscriber premises (103 in figure 1, connecting local network) and optical splitter subtending the respective ONUs (102 in figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the ONUs and the splitter as taught by Xu et al. in the network taught by Pratt et al. in order to properly route the signals to their appropriate subscribers.

(4) With respect to claims 9 and 29:

Pratt et al. teach all of the subject matter as described above except for a system wherein the optical splitter interfaces a first optical fiber to a plurality of second optical fibers; wherein one of the second optical fibers directly connects the optical splitter to the ONU; and wherein at least one of the second optical fibers directly serves a subscriber premises of the plurality of subscriber premises.

Xu et al. teach a system wherein the optical splitter interfaces a first optical fiber to a plurality of second optical fibers (102 in figure 1); wherein one of the second optical fibers directly connects the optical splitter to the ONU (102, 103 in figure 1); and wherein at least one of the second optical fibers directly serves subscriber premises of the plurality of subscriber premises (very first splitter in 102 of figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the architecture taught by Xu et al. in the network taught by Pratt et al. because it allows for one fiber to be used to serve a plurality of subscriber premises.

(5) With respect to claims 10 and 31:

Pratt et al. teach a system wherein at least one of the second optical fibers serves a second optical splitter (23 serves 18 in figure 1).

(6) With respect to claims 11 and 32:

Pratt et al. teach all of the subject matter as described above except for a system wherein at least one of the second optical fibers serves a second ONU that provides communications for a second plurality of subscriber premises.

Xu et al. teach a system wherein at least one of the second optical fibers serves a second ONU that provides communications for a second plurality of subscriber premises (a second fiber serves the ONU that serves the local network in figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a second fiber to serve a second ONU to serve a plurality of subscriber premises as taught by Xu et al. in the network taught by Pratt et al. because it uses only fiber to serve a plurality of subscribers.

(7) With respect to claims 18 and 33:

Pratt et al. teach a system wherein the OLT is located at one of a central office (CO) or a remote terminal (RT) (OLT 210 located at CO 16 in figure 5).

(8) With respect to claims 19 and 34:

Pratt et al. teach all of the subject matter as described above except for a system wherein the ONU is coupled to the OLT through a plurality of optical splitters.

Xu et al. teach a system wherein the ONU is coupled to the OLT through a plurality of optical splitters (103 connected to 601 through 602 and 603 in figure 2).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to connect the OLT and the ONU through a plurality of splitters as taught by Xu et al. in the network taught by Pratt et al. because they form a PON system, which is a simple and economical way of providing point-to-multipoint service.

(9) With respect to claims 20 and 35:

Pratt et al. teach a system wherein the optical splitter is configured to be coupled to a plurality of fiber optic drops that serve a plurality of subscriber premises (19 in figure 1, fiber drop).

However, Pratt et al. don't teach a system wherein the ONU is configured to be connected to a plurality of conductor drops that serve the plurality of subscriber premises; and wherein the OLT and the ONU are configured to provide a broadband service via the fiber optic drops and to provide a voice service and/or a data service via the conductor drops.

Xu et al. teaches a system wherein the ONU is configured to be connected to a plurality of conductor drops that serve the plurality of subscriber premises (figure 1, conductor drop connects ONU to local network); and wherein the OLT and the ONU are configured to provide a broadband service via the fiber optic drops (ONU receives

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broadband from the OLT in figure 1) and to provide a voice service and/or a data service via the conductor drops (xDSL in figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the OLT and the ONU as taught by Xu et al. in the network taught by Pratt et al. in order to route the service to their appropriate subscribers.

(10) With respect to claim 30:

Pratt et al. teach a method further comprising directly connecting at least one of the second fibers to an ONT at a subscriber premises (19 in figure 1 to 14 in figure 1).

4. Claims 3, 4, 26, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt et al. (20030076560) and Xu et al. (20020071149) as applied to claims 1 and 24 above, and further in view of Dyke et al. (6,351,582) (Dyke '582).

(1) With respect to claims 3, 4, 26, 27:

Pratt et al. and Xu et al. teaches all of the subject matter as described above except for an apparatus wherein the optical splitter and the ONU are configured to be co-located at one of a pole or a pedestal.

However, Dyke '582 teaches an apparatus wherein the optical splitter and the ONU are configured to be co-located (440 in figure 4, the reference interprets the apparatus as the final drop arrangements which contains the splitter and the ONU).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to co-locate the splitter and the ONU as taught by Dyke '582 in the network taught by Dyke '042 in order to reduce the amount of fiber required in the transmission.



Although Dyke '582 does not teach an apparatus co-located at a pole or a pedestal, it would have been obvious to one of ordinary skill in the art to co-locate the splitter and the ONU at a pole or a pedestal in order to route services to the subscribers.

5. Claims 5-7, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt et al. (20030076560) and Xu et al. (20020071149) and Dyke et al. (6,351,582) (Dyke '582) as applied to claims 1 and 24 above, and further in view of Fitz (6,236,789).

(1) With respect to claims 5, 6, 7, 28:

Pratt et al. and Xu et al. disclose all of the subject matter as described above, except for a system wherein a composite copper/fiber cable couples an optical line terminal (OLT) and the power source to the optical splitter and the ONU, respectively.

Fitz teaches a system wherein a composite copper/fiber cable couples an optical line terminal (OLT) and the power source to the optical splitter and the ONU, respectively (column 7, lines 22 – 30, the splitters are part of the optical distribution elements).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a composite cable to couple the power source to the splitters and the ONU as taught by Fitz in the optical network taught by Pratt et al. because it is more convenient and more economical to use one cable instead of a separate cable for power. It eliminates the need for extra conductor and fiber drops.

6. Claims 12, 13, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt et al. (20030076560) and Xu et al. (20020071149) as applied to claims 1 and

24 above, and further in view of Bears (5,349,457) and Dyke et al. (6,427,042) (Dyke '042).

(1) With respect to claims 12, 13, 14:

Pratt et al. and Xu et al. teach a system wherein the optical splitter interfaces a first optical fiber to a plurality of second optical fibers; wherein one of the second optical fibers directly connects the optical splitter to the ONU.

However, Pratt et al. and Xu et al. don't teach a system wherein the optical splitter and the ONU are positioned at a pedestal on a first side of a street; wherein at least one of the second optical fibers and at least one conductor connected to the ONU serve subscriber premises on the first side of the street; and wherein a buried composite cable carries at least one of the second optical fibers and at least one conductor connected to the ONU to a location on a second side of the street to serve subscriber premises on the second side of the street.

Bears teaches a system wherein the optical splitter and the ONU are positioned at a pedestal on a first side of a street (column 4, lines 36-44, 46-48); wherein at least one of the second optical fibers and at least one conductor connected to the ONU serve subscriber premises on the first side of the street (the subscriber premises are served with conductors since the ONU converts from optical to electrical); and a system wherein a buried composite cable carries at least one of the second optical fibers to the ONU to a location (column 4, lines 40-43, Bears teaches that the distribution can be buried).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the pedestal and the buried to cable to provide services as taught by Bears in the network taught by Pratt et al. in order to safely distribute the signals at respective ones of subscriber premises. In doing so, the cables are protected from certain accidents and certain unfortunate natural events.

Dyke '042 teaches at least one conductor connected to the ONU to a location on a second side of the street to serve subscriber premises on the second side of the street (118 in figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to connect a second side of the street as taught by Dyke '042 in the network taught by Pratt et al. in order to service subscribers on both sides of the street. It provides an economical advantage in providing services to a greater number of subscribers.

7. Claims 15, 16, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt et al. (20030076560) and Xu et al. (20020071149) as applied to claims 1 and 24 above, and further in view of Dyke et al. (6,427,042) (Dyke '042) and Fitz (6,236,789).

(1) With respect to claims 15, 16, 17:

Pratt et al. and Xu et al. teach A system according to claim 1: wherein the optical splitter interfaces a first optical fiber to a plurality of second optical fibers; wherein one of the second optical fibers directly connects the optical splitter to the ONU.

However, Pratt et al. and Xu et al. don't teach a system wherein the optical splitter and the ONU are positioned at a pole on a first side of a street; wherein at least one of the second optical fibers and at least one conductor connected to the ONU serve subscriber premises on the first side of the street; wherein an aerial composite cable carries at least one of the second optical fibers and at least one conductor connected to the ONU to a second pole on the first side of the street; and wherein the system further comprises: a second optical splitter that is positioned at the second pole and that interfaces the at least one of the second optical fibers to aerial fiber optic drops to ONTs located at respective subscriber premises on the first side of the street and a second side of the street; and a plurality of aerial conductor drops extending from the second pole to the subscriber premises on the first and second sides of the street.

Dyke '042 teaches a system wherein the optical splitter and the ONU are positioned at a pole on a first side of a street (114 in figure 1); wherein at least one of the second optical fibers and at least one conductor connected to the ONU serve subscriber premises on the first side of the street (116 in figure 1); wherein an aerial cable carries at least one of the second optical fibers and at least one conductor connected to the ONU to a second pole on the first side of the street (114 in figure 1); and a plurality of aerial conductor drops extending from the second pole to the subscriber premises on the first and second sides of the street (conductor drop serves the phone in figure 2).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use aerial cables to connect the OLT to the ONU in order to serve the subscribers as taught by Dyke '042 in the network taught by Pratt et al. in order to provide the signals to the appropriate subscribers.

Although Dyke '042 does not teach a second optical splitter that is positioned at the second pole and that interfaces the at least one of the second optical fibers to aerial fiber optic drops to ONTs located at respective subscriber premises on the first side of the street and a second side of the street, he does teach the use of several splitters (112b in figure 1) in the distribution system.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the seconds splitter in the network taught by Pratt et al. in order to route broadband services to the plurality of ONUs at the respective subscriber premises.

Fitz teaches composite cable (10 in figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use composite cable as taught by Fitz in the network taught by Pratt et al. in order to supply both fiber services and cable to the subscribers.

8. Claims 21, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dyke et al. (6,427,042) (Dyke '042) in view of Dyke et al. (6,351,582) (Dyke '582).

(1) With respect to claim 21:

Dyke '042 teaches a telecommunications apparatus, comprising:

an optical splitter configured to interface a first fiber of a PON to a plurality of second fibers (1:32, 112a, 112b in figure 1); an ONU connected to one of the second fibers and configured to interface a plurality of conductive circuits to the one of the second fibers (the ONU at the subscriber premises interface conductive circuits 132 with fiber 118 in figure 1).

However, Dyke '042 does not teach an ONU co-located with the optical splitter.

Dyke '582 teaches an ONU co-located with the optical splitter (column 8, lines 31 – 34, the examiner interprets co-located as being at close proximity to each other).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to co-locate the splitter and the ONU in order to avoid transmission loss incurred in longer transmission fiber.

(2) With respect to claim 22:

Dyke '042 teaches all of the subject matter as described above except for an apparatus wherein the optical splitter and the ONU are configured to be co-located at one of a pole or a pedestal.

However, Dyke '582 teaches an apparatus wherein the optical splitter and the ONU are configured to be co-located (440 in figure 4, the reference interprets the apparatus as the final drop arrangements which contains the splitter and the ONU).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to co-locate the splitter and the ONU as taught by Dyke '582 in the network taught by Dyke '042 in order to reduce the amount of fiber required in the transmission.

Although Dyke '582 does not teach an apparatus co-located at a pole or a pedestal, it would have been obvious to one of ordinary skill in the art to co-locate the splitter and the ONU at a pole or a pedestal in order to route services to the subscribers.

9. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dyke et al. (6,427,042) (Dyke '042) in view of Fitz (6,236,789).

Dyke '042 discloses all of the subject matter as described above, except for a system wherein a composite copper/fiber cable couples an optical line terminal (OLT) and the power source to the optical splitter and the ONU, respectively.

Fitz teaches a system wherein a composite copper/fiber cable couples an optical line terminal (OLT) and the power source to the optical splitter and the ONU, respectively (column 7, lines 22 – 30, the splitters are part of the optical distribution elements).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a composite cable to couple the power source to the splitters and the ONU as taught by Fitz in the optical network taught by Pratt et al. because it is more convenient and more economical to use one cable instead of a separate cable for power. It eliminates the need for extra conductor and fiber drops.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guerssy Azemar whose telephone number is (571) 270-1076. The examiner can normally be reached on Mon-Fri (every other Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Guerssy Azemar

12/20/06



KENNETH VANDERPUYE  
SUPERVISORY PATENT EXAMINER